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## 13. Transportation Vehicle Operations

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### 13.1 Transportation Operations

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#### **MMS Transport of Category 1 Materials**

At the Main Site and at Site 300, MMS transports Category 1 Hazardous Materials in MMS vehicles or authorizes hand carrying of small quantities of Category 1 Material in accordance with MMS Handcarry Procedure MM-VI-10. MMS is responsible for assuring proper containment, communication (i.e., labeling and placarding), and packaging.

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#### **HWM Transport of Category 2 Materials**

Category 2 Hazardous Materials can only be transferred from WAAs in an HWM-owned truck driven by HWM technicians except at Site 300.

At Site 300 wastes located at a WAA within 500 feet of HWM Division's TSDF may be transported by forklift by HWM personnel. The HWM Technician is responsible for assuring proper containment, communication (i.e., labeling and placarding), packaging, and palletizing the wastes before transfer.

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#### **MDD Transport of Category 3 Materials**

At the Main Site and Site 300, MDD transports Category 3 Hazardous Materials in the original DOT packages to the user from the Receiving Area using MDD vehicles and observing the following conditions.

- No repackaging or removal of labeling or markings is permitted.
- Damaged containers are repackaged in DOT-specification containers or other approved containers.

**Table 9-2** lists the MDD vehicles used to transfer hazardous materials onsite.

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#### **User Transport of Category 3 Materials**

The user may pick up and transport Category 3 Hazardous Materials from the receiving area in a pickup truck. MDD ensures that packages are adequately tied down.

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## 13.2 Loading and Unloading Operations

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### **Policy: Loading and Unloading Hazardous Materials**

LLNL employees must take extreme care when any hazardous material is loaded or unloaded from vehicles.

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### **Responsibility for Loading/Unloading Category 1 Materials**

Except for explosives at Site 300, only MMS, MDD, or Plant Engineering personnel under the supervision of MMS can load and unload Category 1 Hazardous Materials.

At Site 300, explosives may be loaded or unloaded by personnel who are trained and qualified, as described in the *LLNL Health and Safety Manual*, Chapter 24, and *Site 300 Safety and Operational Manual*.

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### **Responsibility for Loading/Unloading Categories 2 and 3 Materials**

Only HWM or MDD personnel who are trained and qualified as described in the *LLNL Health and Safety Manual* can load and unload Category 2 and 3 hazardous materials from MDD vehicles.

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### **Loading/Unloading Requirements**

Drivers and transport personnel are responsible for ensuring the following requirements are observed during loading and unloading operations of hazardous materials:

- Smoking is not permitted during loading and unloading operations.
  - Vehicles shall not be loaded or unloaded unless the vehicle motor is turned off, and the parking brake is set.
  - Explosives vehicles parked on a grade must also use a wheel chock.
  - Large and/or heavy packages must be positioned so that the weight is equally distributed over the width and length of the conveyance.
  - Forklifts used to transport hazardous materials, substances, and/or wastes shall not exceed their rated lift capacity.
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## 13.3 Vehicle Safety Requirements

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Vehicles used to transport hazardous materials, substances, and/or wastes at the Main Site and/or at Site 300 must meet the following minimum safety requirements:

- Daily vehicle inspection must be performed as per **Section 13.5**.
- Vehicles (except user vehicles and forklifts) used to transport hazardous materials and substances must, at a minimum, be equipped with a fire extinguisher and spill kits for emergencies.
- Vehicles (except user vehicles and forklifts) must be supplied with DOT compatibility charts and emergency response information from the guide book.
- Vehicles transferring hazardous materials onsite shall be placarded as per the applicable DOT requirements
- No maintenance or refueling is permitted on any vehicle carrying hazardous materials except for emergency situations and only after being reviewed by Hazards Control.
- Vehicles shall not be loaded in excess of their rated weight limit.
- Personnel are permitted to ride in the cab section only unless otherwise approved by the Division Leader of the responsible division.
- No hazardous materials, substances, or wastes are permitted in the cab section.
- DOT hazardous materials compatibility requirements must be followed.
- The user may transport only those packages assigned to him or her.

**Note:** Vehicles used to transport Category 1 Hazardous Materials shall not be left unattended during the transportation process.

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### **Vehicles Used to Transport Explosives**

Vehicles used to transport explosives at the Main Site and/or at Site 300 must also meet the following additional minimum requirements:

- Vehicles must be equipped, approved, and inspected according to *LLNL Health and Safety Manual*, Supplement 24.05.
- Before new vehicles are placed into service, they shall be inspected by Fleet Management and Hazards Control Explosives Safety personnel.

- Routine vehicle maintenance is required as per the automotive fleet service schedule.
  - Explosive-contaminated waste water must be handled according to Site 300 Procedure #403, "Operation of Tank Truck Carrying Waste Water from Explosives Processing and Photo Rinse Operations."
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**Vehicles Used to Transport Radioactive Materials**

Drivers and vehicles used to transport radioactive materials and wastes at the Main Site and/or at Site 300 must also meet the following additional minimum requirements:

- Drivers transporting radioactive materials must be trained to use emergency supplies. **Note:** A driver on the hazardous waste run does not require training if the accompanying Hazardous Waste Technician is trained.
  - Vehicles must be swiped by Hazards Control for radiation contamination on a routine basis after transport of radioactive materials or wastes.
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**Forklift Requirements**

Forklifts used to transport hazardous materials, substances, and/or wastes at the Main Site and/or at Site 300 must meet the following minimum requirements:

- Forklifts must be approved for the load and inspected according to the *LLNL Health and Safety*, Supplement 29.04A.
  - Forklifts used to transport radioactive materials and/or wastes are swiped routinely by Hazards Control or after use.
  - Forklifts shall not be loaded in excess of their rated weight limit. No more than two 55-gal waste drums containing liquids on wood pallets or four 55-gal waste drums on PDQ plastic pallets may be transported on one forklift at a time.
  - Only the forklift driver is permitted to ride in the vehicle.
  - DOT hazardous wastes compatibility requirements must be followed.
  - Forklifts used to transport industrial gases are equipped with turn signals and gases are transported in special loading cages.
  - Forklifts used for explosives must be approved and stenciled "High Consequence/HE Approved."
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## 13.4 Vehicle Tiedowns

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All material, including hazardous materials, must be sufficiently blocked, braced, and/or tied down to prevent any change in position during transport. Packages must be secured in a manner which does not compromise the integrity of the packaging. During delivery operations, tiedowns must be rechecked and, if necessary, re-secured whenever a package is unloaded or the integrity of the tiedown is compromised.

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### **Minimum Requirements for Tiedowns**

Tiedowns used on vehicles that transport Categories 1, 2, or 3 materials at the Main Site and/or at Site 300 must also meet the following minimum requirements:

- Vehicles used to transport hazardous materials, substances, and/or wastes are equipped with tiedowns that meet or exceed DOT requirements.
  - Personnel are required to use these tiedowns whenever possible.
  - Individual components of a tiedown system must be used in the manner for which they were intended and may not exceed their rated capacities.
  - Defective components may not be used.
  - All slack must be removed from the tiedowns before transport.
  - Packages shall be secured to the vehicle during transportation.
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### **Preparation Requirements for Category 2 Hazardous Materials**

The waste generator is responsible for palletizing Category 2 Hazardous Materials prior to transport by strapping, blocking, bracing, and taping packages together to prevent any shifting during transport. HWM Division inspects packages and pallets prior to waste pickup.

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## 13.5 Maintenance and Inspection

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### Fleet Management Inspection Schedule

LLNL has established a routine inspections for all vehicles used to transport any material, including hazardous materials. **Table 13-1** provides the inspection schedule for these vehicles and indicates who performs the inspection. The results of all LLNL vehicle inspection are maintained by the Fleet Management Group.

**Table 13-1. Inspection schedule and inspection responsibilities for HMPT vehicles.**

Type of Vehicle	Minimum Inspection Schedules				
	Daily <sup>a</sup>	Every 2 mo	Every 3 mo	Every 4 mo	Once a year
Category 1 transport vehicles	Driver	Fleet Management Group			Fleet Management Group
Category 2 transport vehicles	Driver		Fleet Management Group		CHP <sup>b</sup>
Category 2 HWM forklifts	Driver	Fleet Management Group		Fleet Management Group	
Category 3 transport vehicles	Driver			Fleet Management Group	CHP <sup>b</sup>
–Site 300	Driver	Fleet Management Group			
–Main Site	Driver			Fleet Management Group	
User Vehicles					Fleet Management Group

<sup>a</sup> Drivers must inspect their vehicles daily before the vehicle is used to transport hazardous materials. Inspections are to be documented on a Vehicle Inspection Form (**Figure 13-2**).

<sup>b</sup> California Highway Patrol (CHP) inspects vehicles only if used to transport hazardous waste.

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### Daily Vehicle Inspection Forms

Daily vehicle inspections are also performed before material transfers are conducted. The results are documented on the Vehicle Inspection Form (**Figure 13-1**). A sample of the Vehicle Inspection Form must remain in the cab when the vehicle is in use. Copies of the multipart form are available through Stores.

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**Hazardous  
Materials  
Loading  
Checklist**

Drivers must complete a Hazardous Materials Loading Checklist (**Figure 13-2**) for onsite transfers of hazardous materials (except on vendor or private carrier vehicles used to pick up one-time receivables from the Receiving or Industrial Gas areas). The inspection includes checking individual packages for damage or leaks. Adherence to tiedown requirements and communication requirements are also noted on the form. Transfers not conforming to requirements are rejected and noted.

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**LLNL Vehicle Inspection Report**  
**Must be in cab at all times including Hazardous Material Transport**  
**(Check any defective item with X and give details)**

Organization \_\_\_\_\_ Date \_\_\_\_\_ Pre-Trip ☐  
 Tractor/Truck \_\_\_\_\_ Trailer \_\_\_\_\_ Post-Trip ☐  
 Duty \_\_\_\_\_ Trailer \_\_\_\_\_ Odometer Reading \_\_\_\_\_

**TRACTOR/TRUCK:**

<input type="checkbox"/> Air Compressor & Lines	<input type="checkbox"/> Generator/Alternator	<input type="checkbox"/> Fire Extinguishers
<input type="checkbox"/> Battery	<input type="checkbox"/> Horns/Siren	<input type="checkbox"/> Fuses, Fuses
<input type="checkbox"/> Brakes:	<input type="checkbox"/> Horn	<input type="checkbox"/> Spare Bulbs & Fuses
<input type="checkbox"/> Service Brakes	<input type="checkbox"/> Lights	<input type="checkbox"/> Spare Gasoline System
<input type="checkbox"/> Parking Brake	<input type="checkbox"/> Head Lights	<input type="checkbox"/> Spare Tires
<input type="checkbox"/> Fluid Leaks	<input type="checkbox"/> Back-up Light	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Cargo Securing Devices	<input type="checkbox"/> Brake Lights	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Clutch	<input type="checkbox"/> Four Way Flashers	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Doors	<input type="checkbox"/> Marker Light	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Drive Line	<input type="checkbox"/> Tail Lights	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Electrical Wires	<input type="checkbox"/> Turn Signals	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Engine:	<input type="checkbox"/> Mirrors	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Belts & Hoses	<input type="checkbox"/> Mud Flaps	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Fluids	<input type="checkbox"/> Muffler/Exhaust System	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Readability Good	<input type="checkbox"/> Pliers/Tools (if required)	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> PTH Wheel	<input type="checkbox"/> Reflectors	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Front Axle	<input type="checkbox"/> Safety Equipment	<input type="checkbox"/> Spare (Specify below)
<input type="checkbox"/> Fuel Tanks & Lines	<input type="checkbox"/> Emergency Triangles	<input type="checkbox"/> Spare (Specify below)

**TRAILER:**

<input type="checkbox"/> Air Lines/Connections	<input type="checkbox"/> Landing Gear	<input type="checkbox"/> Tires:
<input type="checkbox"/> Brakes	<input type="checkbox"/> Lights	<input type="checkbox"/> Tires
<input type="checkbox"/> Coupling Devices & Chains	<input type="checkbox"/> Springs	<input type="checkbox"/> Wheels:
<input type="checkbox"/> Hitch		<input type="checkbox"/> Other (Specify below)

**ADDITIONAL REQUIREMENTS WHEN TRANSPORTING EXPLOSIVES ON SITE:**

<input type="checkbox"/> Maintenance inspection within 120 days	<input type="checkbox"/> Waste check book
<input type="checkbox"/> No sharp projections in cargo area	<input type="checkbox"/> Rear vision mirror (one on each side)
<input type="checkbox"/> Two fire extinguishers inside & outside cab	<input type="checkbox"/> Battery quick-disconnect switch

**ADDITIONAL REQUIREMENTS WHEN TRANSPORTING EXPLOSIVES OFF SITE:**

<input type="checkbox"/> Two way radio (Not with license)	<input type="checkbox"/> No flame producing emergency devices
<input type="checkbox"/> Fire retardant tarp for the cargo	<input type="checkbox"/> Railroad crossing sign
<input type="checkbox"/> Space bars, bails and headstays	<input type="checkbox"/> Flashlight

**REMARKS:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**CHECK HERE IF CONDITION OF THE ABOVE VEHICLE(S) IS SATISFACTORY**

Driver Making Report \_\_\_\_\_ (Signature)  
 Mechanic Making Repairs \_\_\_\_\_ (Signature)  
 Accepting Driver \_\_\_\_\_ (Signature)

Distribution: HMPTS Assistance Office—original    Fire—copy    Motor Pool—copy

Current due date: 10-01-1990

**Figure 13-1. Vehicle inspection form.**

# **Hazardous Materials Loading Checklist Transporting On-Site**

Vehicle No.: \_\_\_\_\_ Date: \_\_\_\_\_ Quantity \_\_\_\_\_

Shipping Paper No.: \_\_\_\_\_ Pickup Location \_\_\_\_\_

Material Type: \_\_\_\_\_ Delivery Location \_\_\_\_\_

<u>Prior to Loading Vehicle</u>	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
1. Vehicle safety inspection performed			
2. Container <b>not</b> damaged or leaking			
3. Container cover secured			
4. Container contents identified			
5. Weight within vehicle rating limit			

<u>After Loading Vehicle</u>	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
6. Weight is properly distributed			
7. Load is secured to prevent movement			

<u>Documents to be Carried with Driver</u>	<u>Yes</u>	<u>No</u>	<u>Remarks</u>
8. Motor vehicle inspection			
9. Hazardous material loading checklist			
10. Shipping papers (identifies material)			
11. Emergency Response Guidebook			
12. DOT Compatibility chart			

[ ] Accepted

[ ] Rejected

Vehicle Loaded by: \_\_\_\_\_ Organization: \_\_\_\_\_

If rejected, explain below:

Comments

**Figure 13-2. Hazardous materials loading checklist.**

